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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,257	12/31/2003	Richard L. Goin	2003-0296.01	1724

21972 7590 03/22/2005

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EXAMINER

NGUYEN, LAMSON D

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

ALC

Office Action Summary	Application No. 10/750,257	Applicant(s) GOIN ET AL.	
	Examiner Lamson D. Nguyen	Art Unit 2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 12, 15, 17-19, 24-26, 28, 31, 32 and 36 is/are rejected.
- 7) ☒ Claim(s) 10, 11, 13, 14, 16, 20-23, 27, 29, 30 and 33-35 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/31/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claims 32 are objected to because of the following informalities: There are two claims 32. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-3, 6, 15, 17-19, 25, 31-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Osada et al (6,431,682).

Osada et al teach an inkjet head comprising:

Claim 1:

- a plurality of first channels, each of the first channels having a first length and positioned to fluidly communicate with an ink reservoir, and each of the first channels terminating in a first nozzle (figure 8 teaches first channels 6 having a first length and communicate with ink reservoir 102 in figure 11, each channel terminating in nozzle 12)

- a plurality of second channels, each of the second channels having a second length greater than the first length and positioned to fluidly communicate with the ink reservoir, each of the second channels terminating in a second nozzle, each second nozzle being larger than each first nozzle (figure 8 teaches a plurality of second channels 16 having a second length shorter than the first length and communicate with ink reservoir 102 in figure 11, each second channel terminating in a second nozzle 15, where nozzle 15 is smaller than nozzle 12)

Claims 2, 18, 32:

- wherein the first channels, the first nozzles, the second channels, and the second nozzles are defined in a nozzle plate by laser ablation (figure 1, orifice plate 4, laser ablation is a process, hence does not further limit the apparatus structurally)

Claims 3, 17:

- the first and second nozzles are defined in a nozzle plate, and the first and second channels are defined in a layer distinct from the nozzle plate (figure 10b)

Claims 6, 19:

- the nozzle plate is constructed of at least one of polyimide and phenolic (column 8, lines 9-15)

claim 15:

- a first nozzle in fluid communication with the first channel and having a first cross-sectional area (figure 8, nozzles 15)
- a second nozzle in fluid communication with the second channel and having a second cross-sectional area greater than the first cross-sectional area (nozzles 12 having larger opening than nozzles 15)

Claim 25:

- the first channel is one of a plurality of first channels, the second channel is one of a plurality of second channels, the first nozzle is one of a plurality of first nozzles, and the second nozzle is one of a plurality of second nozzles (figure 8)

Claim 31:

- providing a housing defining an ink reservoir containing ink (figure 11)
- providing a nozzle plate coupled to the housing (figure 11)
- defining a first channel in the nozzle plate in fluid communication with the ink reservoir, the first channel having a first length (figure 8, first channels 16)

- defining a second channel in the nozzle plate in fluid communication with the ink reservoir, the second channel having a second length longer than the first length (figure 8, second channels 6)
- defining a first nozzle in the nozzle plate in fluid communication with the first channel (figure 8, first nozzles 15)
- defining a second nozzle in the nozzle plate in fluid communication with the second channel, the second nozzle larger than the first nozzle (figure 8, second nozzles 12 which are larger than nozzles 15)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-5, 8-9, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osada in view of Rapp et al. (6,626,522).

Osada et al teach all claimed features of the invention with the exception of:

- (claim 4) a plurality of first chambers, each first chamber positioned in fluid communication with a first channel and a first nozzle

- (claim 4) a plurality of second chambers, each second chamber positioned in fluid communication with a second channel and a second nozzle
- (claim 8) a recess in defined in the nozzle plate, the recess having an axial direction
- (claim 9) wherein each of the plurality of first channels and second channels comprise an axial direction perpendicular to the axial direction of the recess
- (claims 5, 24) the first channels and chambers and second channels and second chambers are defined in a layer distinct from the nozzle plate

Meanwhile, Rapp et al teach a plurality of nozzles having ink channels, each nozzle in fluid communication with an ink chamber (figure 1 teaches nozzle 9 in fluid communication with chamber 14 and ink channel 26). Rapp et al further teach ink channel 26 and ink chamber 14 defined in a barrier layer distinct from the nozzle plate 7. Rapp et al teach a nozzle plate (figure 1, plate 7 having a recess or cutout with an axial direction) and wherein ink channels having an axial direction perpendicular to the axial direction of the recess (figure 8).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Osada et al to incorporate the teaching of ink chamber as taught by Rapp et al for the purpose of containing ink to

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be ejected out of a nozzle to print an ink drop, to incorporate the teaching of barrier layer 22 taught by Rapp for the purpose of preventing corrosive action of the ink, and to incorporate the teaching of recess taught by Rapp for the purpose of supplying ink from the ink reservoir to the in nozzles.

Claims 7, 12, 26, 28, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Osada et al in view of Fujii (6,457,796).

Osada et al teach all claimed features of the invention except:

- (claim 7) first nozzle is used to produce a smaller ink drop volume than that each second nozzle
- (Claim 12) each first nozzle produces higher resolution than each second nozzle
- (claims 26, 36) first nozzle produces ink drops having a smaller volume than second nozzle
- (claim 28) printhead is used to create at least one of a high quality print and a draft mode print

Meanwhile, Fujii teaches an inkjet head having a plurality of first nozzles and second nozzles, where first nozzles are used to print a larger drop than that of second nozzles (figure 5). This means that the small ink drops are used to create higher resolution or high quality print mode than larger ink drops.

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Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Osada et al to incorporate the teaching of different sized ink drops as taught by Fujii for the purpose of achieving different print resolutions.

Allowable Subject Matter

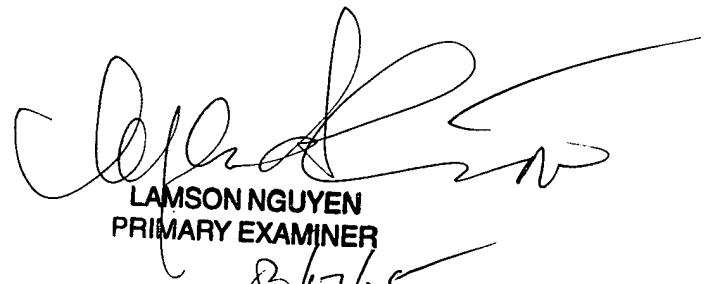
4. Claims 10-11, 13-14, 16, 20-23, 27, 29-30, 33-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamson D. Nguyen whose telephone number is 571-272-2259. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Talbott can be reached on 571-272-1934. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LAMSON NGUYEN
PRIMARY EXAMINER
8/17/05